WHAT IS CLAIMED IS:

- 1. A protein having a β 1,3-galactosyltransferase activity derived from a microorganism having an activity of transferring galactose to N-acetylglucosamine with β 1,3-linkage.
- 2. The protein according to claim 1, wherein the microorganism belongs to the genus Streptococcus.
- 3. The protein according to claim 2, wherein the microorganism is $Streptococcus\ agalactiae$.
- 4. A protein comprising the amino acid sequence represented by SEQ ID NO:1.
- 5. A protein comprising an amino acid sequence in which at most 20 amino acids are deleted, replaced, inserted or added in the amino acid sequence represented by SEQ ID NO:1, said protein having a $\beta 1,3$ -galactosyltransferase activity.
- 6. A DNA encoding the protein of any one of claims $\boldsymbol{1}$ to 5.

- 7. A DNA comprising the nucleotide sequence represented by SEQ ID NO:2.
- 8. A DNA which hybridizes with a DNA comprising the complementary sequence to the nucleotide sequence represented by SEQ ID NO:2 under stringent conditions, and encodes a protein having a β 1,3-galactosyltransferase activity.
- 9. A recombinant DNA comprising the DNA of any one of claims 6 to 8 and a vector.
- 10. A transformant obtained by introducing the recombinant DNA of claim 9 into a host cell.
- \$11.\$ The transformant according to claim 10, wherein the host cell is a microorganism.
- 12. The transformant according to claim 11, wherein the microorganism belongs to the genus Escherichia.
- 13. The transformant according to claim 12, wherein the microorganism belonging to the genus Escherichia is Escherichia coli.

14. A method for producing a protein having a \$\beta 1.3-galactosyltransferase activity, combrising:

culturing the transformant of any one of claims 10 to 13 in a medium to produce and accumulate a protein having a $\beta1,3\text{-galactosyltransferase}$ activity in the culture, and

recovering the protein from the culture.

15. A method for producing a galactose-containing carbohydrate, comprising:

selecting, as an enzyme source, a culture of the transformant of any one of claims 10 to 13 or a treated product of the culture,

allowing the enzyme source, uridine-5'-diphosphogalactose and an acceptor carbohydrate to be present in an aqueous medium to produce and accumulate the galactose-containing carbohydrate in the aqueous medium, and

recovering the galactose-containing carbohydrate from the aqueous medium.

16. The method according to claim 15, wherein the treated product of the culture is selected from the group consisting of a concentrated product of the culture, a dried product of the culture, cells obtained by centrifuging the culture, a dried product of the cells, a

freeze-dried product of the cells, a surfactant-treated product of the cells, an ultrasonic-treated product of the cells, a mechanically disrupted product of the cells, a solvent-treated product of the cells, an enzyme-treated product of the cells, a protein fraction of the cells, an immobilized product of the cells and an enzyme preparation obtained by extracting from the cells.

- 17. The method according to claim 15, wherein the acceptor carbohydrate is a carbohydrate having N-acetylglucosamine at its non-reducing terminal.
- 18. The method according to claim 15, wherein the acceptor carbohydrate is selected from the group consisting of N-acetylglucosamine and lacto-N-triose II.
- 19. The method according to claim 15, wherein the galactose-containing carbohydrate is selected from the group consisting of lacto-N-biose and lacto-N-tetraose.